

Oil & Gas Seismic, Well, and Lease Data Acquisition**FY2004 Request:****\$250,000****Reference No:****33977****AP/AL:** Appropriation**Project Type:** Planning**Category:** Development**Location:** Statewide**Contact:** Mark Myers**House District:** Statewide (HD 1-40)**Contact Phone:** (907)269-8800**Estimated Project Dates:** 07/01/2003 - 06/30/2004**Brief Summary and Statement of Need:**

Proper oversight of industry exploration and development (E&D) activities on state lands requires that the Division maintain a degree of technical parity with lessees and operators. To accomplish its mission of responsibly managing and encouraging development of the state's petroleum resources, the Division must have funding to acquire, analyze, and preserve oil and gas E&D data, to maintain the technical and engineering applications necessary to do so, to acquire the information in quantity, and to do so in formats compatible with the Division's analytical applications. This project differs from previous similar projects in that it now includes reservoir engineering responsibilities.

Funding:	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	Total
Gen Fund	\$250,000	\$200,000	\$150,000	\$150,000	\$150,000	\$150,000	\$1,050,000
Total:	\$250,000	\$200,000	\$150,000	\$150,000	\$150,000	\$150,000	\$1,050,000

<input type="checkbox"/> State Match Required	<input type="checkbox"/> One-Time Project	<input type="checkbox"/> Phased - new	<input type="checkbox"/> Phased - underway	<input checked="" type="checkbox"/> On-Going
0% = Minimum State Match % Required		<input type="checkbox"/> Amendment	<input type="checkbox"/> Mental Health Bill	

Operating & Maintenance Costs:

	<u>Amount</u>	<u>Staff</u>
Project Development:	0	0
Ongoing Operating:	0	0
One-Time Startup:	0	0
Totals:	0	0

Additional Information / Prior Funding History:

SSSLA02/CH1 - \$155,000 (Seismic Data Acquisition and Interpretation)

SLA01/CH61 - \$138,000 (Seismic Data Acquisition and Interpretation)

SLA93/CH79 - \$450,000 (Seismic Data Acquisition and Evaluation)

Project Description/Justification:

Task 1: In order to accomplish the Division's mission of maximizing responsible oil and gas development for the benefit of the state's citizens the Division must acquire: (1) exploration data (primarily 2-D and 3-D seismic data); (2) reservoir engineering data for proper allocation of reserves and reservoir performance modeling; (3) staff training to maintain proficiency to industry standards; (4) state-of-the-art hardware and interpretive/analytical software; and (5) data processing and reprocessing services. These data, skills and capabilities are the tools used by the Division to ascertain the hydrocarbon potential of state lands offered for lease, to determine the economic value of unit and participating area proposals submitted by industry, to properly monitor field development and production procedures, and to properly quantify and evaluate the extracted resource.

Petroleum exploration and production companies acquire hundreds of line miles of 2-D seismic data and hundreds of square miles of 3-D seismic data each year as they explore for new prospects, re-survey previously explored areas, and monitor reservoir performance. Although the Division has in place a permit procedure to acquire these data acquired on state land for only the cost of reproduction, there is sometimes the need to acquire data from adjacent federal

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and private lands. The NPR-A and the OCS portion of the Beaufort Sea are such areas. Data in these areas are exempt from permit stipulations and must be purchased from the operator at market rate (\$3,000 per line mile for 2-D data and \$20,000 per square mile for 3-D data are typical prices). On occasion the Division might experience the need for small problem-specific processing applications beyond its in-house capability. For example, analysis of certain attributes or characteristics of 3-D seismic data representing reservoir properties might be required to properly allocate reserves and production to lessor and lessees.

Internal realignment is expected to provide the Division with a second geophysical explorationist in early FY04. While this will not require additional staff it will require additional technical support in the areas of software licensing and training.

To complete the Division's technical capability a Reservoir Engineer position was recently added to the organization. Among the major responsibilities of this position are determination and verification of tract allocations at various times throughout field life and monitoring reservoir and field development and production performance through complex reservoir simulation models. Proper support of this position will require acquisition of additional engineering data and information, purchase and licensing of as-yet-unidentified computers and engineering applications, and training in the use of those applications.

Task 2: Over the last two years the Division has been able to convert quantities of analog hardcopy data to suitable digital format for input to our interpretive software and for permanent archival purposes. Substantial quantities of confidential and non-confidential interpreted and analyzed information in the form of maps, cross-sections and well logs derived from the data are preserved only in hard-copy form and must also be converted to digital form before it deteriorates beyond recovery. Through an optical scanning process these data are converted to longer-lasting CD or DVD media compatible with our data processing capabilities. To do so will require outsourcing the project to a contractor for about six months or employment of a student intern for one year.

Task 3: As the Division's volume of exploration data has grown in recent years, especially since the now common use of 3D seismic methods, our practice of expanding our digital storage capacity has been one of buying and installing small additional disks as required. We now find ourselves in the position of utilizing an array of multiple disks difficult to map to the various users within the Division. The situation will quickly grow worse as new engineering applications and extremely large volume reservoir simulation models are added to the Division's database structure. The complications introduced to system design and management by such architecture requires restructuring databases with each new addition and making appropriate modifications to existing applications and user connections. As the network grows more complex there is increased risk of misuse of the data and the disclosure of confidential industry information. Purchase and installation of a large one-Terabyte (expandable to 3-6 Terabytes) single hard disk array with Redundant Array of Independent Disks (RAID) properties (\$80,000 estimate) will meet the Division's data management and storage needs for the foreseeable future. The RAID capability allows any failed disk to be "hot-swapped" with a functional disk in real time without system shutdown or loss of valuable data. Hence system maintenance is simplified, user accessibility is enhanced and accelerated and data recovery issues are substantially mitigated

Why is this Project Needed Now:

The Division of Oil and Gas is responsible for ensuring that petroleum-derived revenues are maximized by responsible oil and gas exploration and development of state lands. To do so requires that the division's small staff attain and maintain information and database equivalency and technical competency comparable to its industry contemporaries. These are the fundamental state assets upon which Alaska's conventional oil and gas leasing, shallow gas leasing, exploration licensing, and development and production negotiations and decisions rest.

The distribution of proven and potential oil and gas reservoirs is not constrained by political boundaries and, as exploration and development now expand into areas of mixed ownership, the division must acquire exploration data from the adjacent lands if it is to perform its role properly – that is to protect the state's interests in those federally and privately owned areas from which the state shares revenue derived from oil and gas leasing, exploration and production. Although the division receives, at low cost, geophysical data acquired under permit from state lands, such data acquired from adjacent federal and private lands must be purchased in quantity at market price.

The large quantity of exploration, development and production data and information are of little value unless Division staff is trained and is provided the technical support necessary to properly evaluate them in a manner comparable to that of industry. The industry continually improves its data acquisition, processing, and interpretation technologies and the division must incorporate interpretive software and hardware advances in its engineering and interactive interpretation and mapping applications to maintain reasonable compatibility. The evolution from 2-D seismic to 3-D surveys has increased the volume of data tremendously. The memory capacity and speed of the division's computer network must be expanded periodically as the greater volumes of data are incorporated into the division's inventory. Over the last decade the industry's preferred digital media have evolved from 9-track half-inch tape to 8-mm. tape cartridges to floppy disks to CDs to DVDs and, now, to Digital Linear Tape. Each media advance requires a new

generation of hardware and software to archive and to analyze the data properly. Technical advances such as these require recurrency training for division staff to properly utilize the system improvements and to maintain a knowledge base comparable with industry contemporaries. If the division's small technical staff is to properly represent the state's interests in a timely and professional manner it requires state-of-the-art knowledge and support. An estimated \$110,000 will be required to make appropriate hardware and software improvements during FY04 and \$10,000 will be required for travel to technical meetings and training courses.

Among the division's extensive inventory of confidential exploration information is a substantial quantity of historical information that is preserved now only in hard-copy format as deteriorating paper and Mylar prints. This information must be converted to digital format by tape transcription or optical scanning methods if it is to be preserved and retained in the Division's interactive computer interpretation database and archives. Otherwise its value will be lost. The Division has not the staff to accomplish this task. Continued funding will allow the division to contract with a vendor(s) that specializes in tape transcription and optical scanning of analog data until the data backlog is eliminated. If a qualified vendor is not identified the Division can employ a student intern to accomplish the task, hopefully within the year.

A non-technical, but important justification for this program is that the state is better prepared to avoid or prevail in matters of litigation related to oil and gas programs, negotiations and determinations. Without the technical expertise, capabilities and data provided by this CIP the Division will be unable to properly represent the state in such matters.

This project will allow the division to:

1. Purchase seismic data from private and federal lands;
2. Upgrade computer equipment as necessary and appropriate;
3. Attain recurrency training to maintain staff proficiency;
4. Better position the state in negotiations and litigation addressing oil and gas exploration and development issues.

Specific Spending Detail:

Line Item Expenditures:

72000 Travel		
Travel & per diem for training, conferences		\$ 7,000
73000 Contractual Services		
Data purchases, analog-to-digital data transform, licensing fees, training		\$145,000
75000 Equipment		
1-3 terabyte hard disk, PCs w/peripherals and software		\$ 98,000

Project Support:

This program is likely to be supported by virtually all agencies dependent upon oil and gas revenue, oil and gas producers and supporting industries and associations.

Project Opposition:

None anticipated.